cific basin heads the list with 177 tons per square mile per year, the northern Atlantic basin being next with 130 tons. The rate for the Hudson Bay basin, 28 tons, is lowest; that for the Colorado and western Gulf of Mexico basins is somewhat higher. The denudation estimates for the southern Atlantic basin correspond very closely to those for the entire United States. The amounts are generally lowest for streams in the arid and semiarid regions, because large areas there contribute little or nothing to the run-off. The southern Pacific basin is an important exception to this general rule, presumably because of the extensive practise of irrigation in that area. The amounts are highest in regions of high rainfall, though usually the waters in those sections are not so highly mineralized as the waters of streams in arid regions.

The first instalment of the vast works planned by Sir W. Willcocks for the irrigation of Mesopotamia by the storage of the Euphrates water is now nearing completion. Details as to the present position of the work, which is being carried out for the Turkish government by the engineering firm of Sir John Jackson, Limited, are quoted in the *Geographical Journal*. The part of the scheme first taken in hand has been the building of the great barrage at Hindieh, with associated works by which the water is to be distributed down the old branch of the river, past the site of Babylon, to Hilla. The barrage is being built to the east of the present bed of the Euphrates, and will be 250 meters long, with thirty-five arches fitted with sluice-gates. The piers of these arches are now completed up to the springing of the latter. This barrage will raise the level of the water by 7 meters, while a subsidiary barrage immediately below will provide for a further difference of 2½ meters. Adjoining the upper barrage there will be a lock for the use of the river traffic, while the lower barrage consists of a lock and a huge shelf of masonry. Work has also been begun on the Hilla regulator, a little above the barrage, which will consist of five arches. The excavation for this has been done, and the masonry begun. These works finished, an earthen dam will be thrown across the stream, which will thus be turned into its new bed between the barrage and the regulator. The old branch has been cleared out, and will be properly canalized, while at Habbania an escape is being constructed by which the flood-water will be carried off into the old Babylonian reservoir. It is estimated that 600,000 acres of land will be plentifully irrigated as a result of these works. The operations have involved a vast amount of excavation, concrete work, masonry, pitching, etc., but there has of late been a plentiful supply of local labor.

UNIVERSITY AND EDUCATIONAL NEWS

By the will of Mrs. Harriet D. Brown, who died in Worcester in November, the Worcester Polytechnic Institute receives a fund of some $50,000, the income to be used for scholarships.

Dr. John C. Hemmeter, professor of physiology at the University of Maryland, at the celebration of academic day on November 12 made a gift of $10,000 for the purpose of beginning the endowment of the chair for experimental physiology.

Mrs. A. M. Jones, widow of Professor Tom Jones, of Manchester, surgeon, who died on October 30, left £1,000 to the Victoria University, Manchester, in augmentation of the endowment of the Professor Tom Jones memorial scholarship, and £500 to the University College of Wales, Aberystwith, as an endowment for promoting the study of surgery.

Captain R. W. Silvester, for twenty years president of Maryland Agricultural College, has resigned because of impaired health. He has been made president emeritus and librarian of the institution. Professor Thomas H. Spence, vice-president of the college, has been appointed acting president.

Dr. Herbert J. Webber has resigned from the department of plant breeding of the College of Agriculture of Cornell University, to accept the directorship of the College of Agriculture of the University of California.

PROFESSOR C. F. BAKER, of the department of biology of Pomona College, has resigned to accept a professorship in the University of the Philippines. He will be at the College of Agriculture, Los Banos, Philippine Islands.

THE Coutts Trotter Studentship at Trinity College, Cambridge, founded for the promotion of original research in natural science (especially physiology and experimental physics), has been divided between Mr. E. D. Adrian, B.A., and Mr. A. E. Oxley, B.A.

THE council of the University of Paris has elected M. Andoyer, professor of physical astronomy in the faculty of science and member of the council of the Nice Observatory, as successor of the late M. Henri Poincaré in the professorship of mathematical astronomy.

DISCUSSION AND CORRESPONDENCE

INSECTS CONTRIBUTING TO THE CONTROL OF THE CHESTNUT BLIGHT DISEASE[1]

INVESTIGATIONS during the summer of 1912 by the Bureau of Entomology have brought to light some very important relations of insects to the chestnut blight, of which one of the most striking is that certain insects contribute to the natural control of the spread of the disease by feeding on and at the same time destroying the fruiting bodies.

During the winter of 1911 the writer observed many cankers with the pustules eaten out and the diseased bark infested with small larvæ. Later adults of the species were reared from these larvæ, one a Cerambycid, *Leptostylus macula* Say, the other a Colydid, *Synchita fuliginosa* Melsh; both were observed while caged to eat the pustules and stroma, the latter even to eat conidial threads.

At the Forest Insect Field Station 9, Charteroak, Pa., an extensive outbreak of the disease was found where a large percentage of the pustules were eaten. Investigation showed both species to be present but *L. macula* doing most of the work. Other insects collected and caged were found to eat the pustules as follows:

Family Buprestidæ—*Agrilus bilineatus* Web.
Family Chrysomelidæ—*Bassareus pretiosus* Melsh.
Family Trogositidæ—*Thymalus fulgidus* Er.

A number of experiments were made by Mr. R. D. Spencer, of the Chestnut Blight Commission, working with the writer, in culturing the stomach contents and excrement of *L. macula,* but in no case did the spores germinate.

Following these observations, a study of the chestnut throughout its northern range showed the same conditions everywhere the bark disease occurred. In many localities 50 per cent. to 75 per cent. of the pustules were eaten. In some cases scarcely a single perfect pustule could be found on a badly diseased tree and in such localities there was evidence of a marked decrease in new infection.

The fruiting bodies are eaten cleanly and deep into the bark, both pygnida and perithecia being destroyed. During the last summer a perceptible increase in the destruction of the pustules by insects was noticed. This shows that they have acquired a taste for the fungus which points toward increased destruction of the spores.

These insects, though not checking the growth of cankers already formed, play a most important part in controlling the dissemination of the disease.

F. C. CRAIGHEAD
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[1] Read before the Biological Society of Washington, November 16, 1912.

A POSSIBLE CAUSE OF ACCIDENTS TO AVIATORS

TO THE EDITOR OF SCIENCE: I think that your valuable paper is in a position to render a very important service in aiding to lower the death rate among aviators.

Probably if we knew all the causes of disaster we should see that they are of many kinds.

To mention only one of the possible causes, take the gyroscopic effect of the revolving-cylinder motor.

Among your readers there are very many